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10/550,019	09/23/2005	Sumie Suda	278231US0PCT	3841
22850	7590	05/29/2008		
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314				
EXAMINER				
FOGARTY, CAITLIN ANNE				
ART UNIT		PAPER NUMBER		
1793				
NOTIFICATION DATE		DELIVERY MODE		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/550,019

Applicant(s)

SUDA ET AL.

Examiner

CAITLIN FOGARTY

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Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 4 February 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 September 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-8508)
- Paper No(s)/Mail Date 11/5/2007
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date _____
- 5) ☐ Notice of Inventor's Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Status of Claims

1. Claims 1 – 14 are pending where claims 1 and 4 have been amended and claims 5 – 14 are new.

Status of Previous Rejections

2. The following rejections have been maintained:
 - Claims 1 – 4 under 35 U.S.C. 103(a) as being unpatentable over Nagao et al. (JP 2002-212665).
 - The nonstatutory obviousness-type double patenting rejection of claims 1 – 4 over claims 1 and 2 of copending Application No. 10/549,753.

Claim Objections

3. Claims 2 and 3 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 2 recites that the Mn content is 0.5% or more. However, claim 1 recites that the Mn content is 0.2 to 1.5%. The range of Mn recited in instant claim 2 may not have a higher maximum than the 1.5% recited in claim 1. Claim 3 recites that the Cr content is 1.3% or more. However, claim 1 recites that the Cr content is 1.0 to 4.0%. The range of Cr recited in instant claim 3 may not have a higher maximum than the 4.0% recited in claim 1.

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4. Claims 1, 4, and 8 – 14 are objected to because of the following informalities: The parentheses around all instances of "including 0%" and "excluding 0%" should be removed in order to clarify whether the contents within the parentheses are a further claim limitation. Appropriate correction is required.

Claim Rejections - 35 USC § 103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 1 – 4, 9, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over the English machine translation of Nagao et al. from the IDS (JP 2002-212665).

With respect to instant claims 1, 9, and 12, the abstract and [0009] – [0010] of Nagao et al. disclose a spring steel with a clearly overlapping composition as shown in Table 1 below.

Table 1

Element	Instant Claims 1,9,12 (mass %)	Nagao et al. (mass %)	Overlapping Range (mass %)
C	0.5 – 0.8	0.37 – 0.8	0.5 – 0.8
Si	1.2 – 2.5	≤ 3.0	1.2 – 2.5
Mn	0.2 – 1.5	0.2 – 2.0	0.2 – 1.5
Cr	1.0 – 4.0	≤ 3.0	1.0 – 3.0
V	0 – 0.5	≤ 0.01	0 – 0.01
P	0 < P < 0.02	≤ 0.01	0 < P < 0.01
S	0 < S < 0.02	≤ 0.03	0 < S < 0.02
Al	0 < Al < 0.01	≤ 0.1	0 < Al < 0.01
Fe + impurities	Balance	Balance	Balance

Nagao et al. does not specifically teach the formula (1) recited in instant claim 1.

However, it is well settled that there is no invention in the discovery of a general formula if it covers a composition described in the prior art, *In re Cooper and Foley* 1943 C.D.

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357, 553 O.G. 177; 57 USPQ 117, *Taklatwalla v. Marburg*, 620 O.G. 685, 1949 C.D. 77, and *In re Pilling*, 403 O.G. 513, 44 F(2) 878, 1931 C.D. 75. In the absence of evidence to the contrary, the selection of the proportions of elements would appear to require no more than routine investigation by those ordinary skilled in the art. *In re Austin, et al.*, 149 USPQ 685, 688. The claim limitations "consisting essentially of" in instant claim 9 and "consisting of" in instant claim 12 are satisfied by the spring steel of Nagao et al. because Nagao et al. does not teach that the spring steel must contain any elements other than those recited in instant claims 9 and 12.

Instant claims 2 and 3 further limit the compositions of Mn and Cr in the spring steel. However, the composition of the spring steel disclosed by Nagao et al. still overlaps with the compositions recited in instant claims 2 and 3.

Instant claim 4 recites that the spring steel further comprises at least one selected from Ni: 0.5% or less excluding 0% and Mo: 0.4% or less excluding 0%. Paragraph [0010] of Nagao et al. teaches that the spring steel may also comprise ≤ 2.0 mass% Ni and/or ≤ 1.0 mass% Mo. Both of these ranges overlap with the compositional ranges of Ni and Mo recited in instant claim 4.

Since the claimed compositional ranges of claims 1 – 4, 9, and 12 either overlap or are within the ranges disclosed by Nagao et al., a prima facie case of obviousness exists. See MPEP 2144.05. It would have been obvious to one of ordinary skill in the art at the time the invention was made to select the claimed spring steel composition from the spring steel composition disclosed by Nagao et al. because Nagao et al. teaches the same utility (i.e. steel for a spring) in the whole disclosed range.

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7. Claims 1 – 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimura et al. (US 6,338,763).

With respect to instant claims 1, 9, and 12, col. 3 lines 26 - 45 of Hashimura et al. disclose a spring steel with a clearly overlapping composition as shown in Table 2 below.

Table 2

Element	Instant Claims 1,9,12 (mass %)	Hashimura et al. (mass %)	Overlapping Range (mass %)
C	0.5 – 0.8	0.4 – 0.7	0.5 – 0.7
Si	1.2 – 2.5	1.2 – 2.5	1.2 – 2.5
Mn	0.2 – 1.5	0.1 – 0.5	0.2 – 0.5
Cr	1.0 – 4.0	0.4 – 2.0	1.0 – 2.0
V	0 – 0.5	0.05 – 0.4	0.05 – 0.4
P	0 < P < 0.02	≤ 0.015	0 < P < 0.015
S	0 < S < 0.02	≤ 0.015	0 < S < 0.015
Al	0 < Al < 0.01	0.0001 – 0.005	0.0001 < Al < 0.005
Fe + impurities	Balance	Balance	Balance

Hashimura et al. does not specifically teach the formula (1) recited in instant claim 1.

However, it is well settled that there is no invention in the discovery of a general formula if it covers a composition described in the prior art, *In re Cooper and Foley* 1943 C.D. 357, 553 O.G. 177; 57 USPQ 117, *Taklatwalla v. Marburg*, 620 O.G. 685, 1949 C.D. 77, and *In re Pilling*, 403 O.G. 513, 44 F(2) 878, 1931 C.D. 75. In the absence of evidence to the contrary, the selection of the proportions of elements would appear to require no more than routine investigation by those ordinary skilled in the art. *In re Austin, et al.*, 149 USPQ 685, 688. The claim limitations “consisting essentially of” in instant claim 9 and “consisting of” in instant claim 12 are satisfied by the spring steel of Nagao et al. because Nagao et al. does not teach that the spring steel must contain any elements other than those recited in instant claims 9 and 12.

Instant claims 2 and 3 further limit the compositions of Mn and Cr in the spring steel. However, the composition of the spring steel disclosed by Hashimura et al. still overlaps with the compositions recited in instant claims 2 and 3.

Instant claim 4 recites that the spring steel further comprises at least one selected from Ni: 0.5% or less excluding 0% and Mo: 0.4% or less excluding 0%. Col. 3 lines 46 – 66 of Hashimura et al. teach that the spring steel may also comprise 0.1 – 2.0 mass% Ni and/or 0.1 – 2.0 mass% Mo. Both of these ranges overlap with the compositional ranges of Ni and Mo recited in instant claim 4.

Instant claims 5 – 8 further limit the composition of the spring steel of instant claim 1. However, the compositional ranges of V, Mn, Cr, and Ni and/or Mo recited in instant claims 5 – 8 still overlap with the compositional ranges recited in col. 3 lines 26 – 66 of Hashimura et al.

Instant claims 10 and 11 further limit claims 5 and 8 by using the claim limitation "consisting essentially of." The spring steel of Hashimura et al. disclosed in col. 3 lines 26 – 66 satisfies this limitation because it does not require that the spring steel must contain any elements other than those recited in instant claims 10 and 11.

Instant claims 13 and 14 further limit claims 5 and 8 by using the claim limitation "consisting of." The spring steel of Hashimura et al. disclosed in col. 3 lines 26 – 66 satisfies this limitation because it does not require that the spring steel must contain any elements other than those recited in instant claims 13 and 14.

Since the claimed compositional ranges of claims 1 – 14 either overlap or are within the ranges disclosed by Hashimura et al., a prima facie case of obviousness

exists. See MPEP 2144.05. It would have been obvious to one of ordinary skill in the art at the time the invention was made to select the claimed spring steel composition from the spring steel composition disclosed by Hashimura et al. because Hashimura et al. teaches the same utility (i.e. steel for a spring) in the whole disclosed range.

Double Patenting

8. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to

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be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

9. Claims 1 – 4 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 and 2 of copending Application No. 10/549,753 as discussed in the November 2, 2007 Office action.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Response to Arguments

10. Applicant's arguments filed February 4, 2008 have been fully considered but they are not persuasive.

Arguments are summarized as follows:

- a. Nagao neither discloses nor remotely suggests suppressing the number of inclusions in the disclosed steel, and in fact such would be contrary to the purpose of the reference. Therefore, the reference does not disclose or suggest the present invention.
- b. While examples No. 5, 6, 7, 10, 12, 14, 15, 18, 19, and 20 in Nagao satisfy formula (1) of the present invention, the content of C in example Nos. 6, 18, 19, and 20 is outside the range of the present invention, the content of Si in example

Nos. 5, 10, 12, and 15 is outside the range of the present invention, and the content of S in example No. 7 is outside the range of the present invention.

c. The addition of 0.1% or less Al in the steel of Nagao is only for deoxidation of the molten steel. Therefore, overall a larger content of Al is suggested for use in the steel of Nagao.

d. The Nagao content of Cr is less than 3.0% and less than $2.5x[\text{Mn}]$. When the content of Cr is more than $2.5x[\text{Mn}]$, the steel loses its toughness even when the steel contains more than 50/2300 (particles/ μm^2) of undissolved carbide. In contrast, the steel of the present invention shows high sag resistance and fatigue property even when the content of Cr is more than $2.5x[\text{Mn}]$.

Examiner's responses are as follows:

a. & c. The instant application does not contain a claim limitation that the number of inclusions is suppressed and therefore Nagao is not required to teach this limitation. The composition of Al disclosed by Nagao overlaps with the composition of Al recited in the instant application as discussed in the 35 U.S.C. 103(a) rejection above. Furthermore, Nagao is not required to recognize the benefits stemming from the low composition of Al. See MPEP 2144 IV.

b. The scope of Nagao is not limited to the specific embodiments it teaches (see *In re Fracalossi* 215 USPQ 569 (CCPA 1982)). Nagao teaches a spring steel with a composition that overlaps with the spring steel recited in the instant

application and satisfies formula (1) as discussed above in the 35 U.S.C. 103(a) rejection.

d. The composition of Cr disclosed by Nagao overlaps with the composition of Cr recited in the instant application as discussed above in the 35 U.S.C. 103(a) rejection. Furthermore, Nagao is not required to recognize the benefits stemming from the composition of Cr. See MPEP 2144 IV.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CAITLIN FOGARTY whose telephone number is

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(571)270-3589. The examiner can normally be reached on Monday - Friday 8:00 AM - 5:30 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Roy King/
Supervisory Patent Examiner, Art
Unit 1793

CF